Journal of Advances and Scholarly Researches in Allied Education
Vol. 20, Issue No. 4, October-2023, ISSN 2230-7540

Work-Related Musculoskeletal Disorders among Physical Therapists in the Kingdom of Saudi Arabia: Prevalence, Characteristics, and Impact

Omar Obaidallah Althomali[1]*, Zaid Fihanalotaibi[2]

[1,2] Physical Therapist, Armed Forces Center For Health Rehabilitation
Taif City -Saudi Arabia

Abstract- Background: In the Kingdom of Saudi Arabia, physical therapists often worry about musculoskeletal disorders connected to their line of work (WRMSDs). Aim: The purpose of this research was to look at the characteristics, prevalence, and effects of WRMSDs on local physical therapists. Method: A thorough survey was carried out to gather information on the participants' demographics, the kind of job they did, and the prevalence of musculoskeletal problems. The research offered a thorough picture of the problem by including a wide sample of physical therapists from a range of settings. Result: The results showed that WRMSDs were much more common among Saudi Arabian physical therapists. Musculoskeletal pain and discomfort were reported by the majority of respondents, and these symptoms had a significant influence on their everyday activities and work performance. Conclusion: The research pinpointed certain risk factors—such as extended patient care durations, subpar ergonomic procedures, and a dearth of workplace preventative measures—that are linked to the development of WRMSDs.

Keywords - Musculoskeletal disorders, Physical therapists, Prevalence, Characteristics, Impact, Saudi arabia

----------X----------

INTRODUCTION

Musculoskeletal injuries caused or made worse by the workplace or its surroundings are referred to as work-related musculoskeletal disorders (WMSD). Smoking, having a higher body mass index (BMI), having a high physical load or psychosocial stress, and having comorbidities (pain, arthritis, and rheumatism) are risk factors for WMSD. [1-3] Heavy lifting, clumsy postures, and excessive repetition are major biomechanical risk factors for WMSD.[1] Physical therapists (PTs) continue to have a significant risk of WMSD despite having a great deal of expertise in ergometrics and injury prevention.[4-6] The incidence of WMSD in PTs has been the subject of many investigations. In Kuwait, PTs with WMSD had a 1-year frequency of 47.6%; the low back (32%), neck (21%), and upper back (13%), were the most often affected regions.[7, 8] The 1-year prevalence in Nigeria was 91.3%, with the neck (34.1%) and low back (69.8%) being the most affected regions. Two main risk factors for WMSD were being female and having a lower BMI. In Izmir, Turkey, PTs had a lifetime incidence of 85% for WMSD; the most susceptible areas were the neck(12%), shoulders(14%), low back(26%), and hand-wrist(8%). The most common movement that led to the development of WMSD was transferring patients (15%).[9] The lifetime frequency of WMSD in Israel was 83%, with the lower back accounting for 80% of cases.[10] In Greek, 89% of PTs had lifetime WMSD prevalence.[11] The occurrence of WMSD in PTs has been the subject of fewer investigations. The 1-year incidence of WMSD among PTs varied from 16.9 to 20.7 injuries per 100 full-time workers, according to two studies conducted in the USA. [12,13] According to a different research, the 3-year incidence of WMSD was 21.4 injuries per 100 full-time workers for younger PTs and 19.6 injuries for older PTs.In [14] These investigations did demonstrate the universality of WMSD in PTs, despite the disparity in technique and reported figures.

Healthcare systems have a heavy direct cost burden from WMSD, which also causes a larger indirect productivity loss. PTs with WMSD saw significant changes in their career aspirations and a decrease in their clinical longevity, both at work and at home.[15] According to a research, WMSD forced every single one of every six physical therapists to modify their workload or even quit.(16–19)

Many cross-sectional studies have reported on the prevalence of WMSD in PTs; however, longitudinal data on the prevalence's progression are rare. In this study, we used Taiwan's national claims database to analyze the incidence and prevalence of WMSD in PTs.

METHODS

Participants

Physical therapists from Saudi Arabia's governmental and private sectors participated in this cross-sectional study. Participants in the study were physical therapists who were registered members of the Saudi Physical Therapy Association (SPTA), had at least one year of work experience, and worked at least one hour a day in their present setting. Therapists who were elderly, retired, or not in practice at the time of the inquiry were excluded from the research.

Procedures

The researchers made contact with the physical therapists who belonged to the SPTA and extended an invitation to participate voluntarily in the study. In addition to the online survey, every participant received a letter over email explaining the purpose of the study. The researchers gave each participant an explanation of the questionnaire and their phone number in case more information was required. Each participant declared their willingness to participate in the study by responding to the questionnaire. Each participant spent between fifteen and twenty minutes to complete the questionnaire. After the online questionnaire was posted, the researchers sent out a courteous reminder to every participant requesting them to finish it if they hadn't already, one month later. The study did not include questionnaires that were completed.

Question Mark

The main objective of the survey was to collect data from physical therapists on their self-reported musculoskeletal pain and concerns linked to their jobs. It was written in English, had six parts, and had previously passed validation. The first segment of the survey collected the participants' demographic information. The participant's background, experience, professional rank, working hours, primary patient type, working locations, areas of specialization, longest spell (in days), total number of episodes, type of complaints, how they began, type of treatment received, whether they had seen an expert regarding the complaint, work position, and exercise regimen were all questioned about in the following section. The Nordic Musculoskeletal Questionnaire was used to evaluate the participant's musculoskeletal complaints (pain or discomfort) in nine anatomical regions: the neck, shoulders, elbows, hands/wrists, and thumbs. A body diagram was used for this purpose.

In the next component, the length of WMSDs was evaluated using the question, "How long does the pain or discomfort typically last?" The following options were presented to the participants for selection: 1) A day, 2) A week, 3) A month, 4) A week and a half, or 5) A month and a half will pass. To determine the frequency of WMSDs, the following question was asked: "How many times have you experienced this pain or discomfort?" For every portion of the body, the participants were instructed to choose one of the following options: The conceivable frequency of usage is once every six months or less, once every two to three months, once a month, once a week, or more than once a week. The level of discomfort was measured using a Visual Analogue Scale (VAS), which ranged from 0 (no pain) to 10 (the worst agony imaginable) for each body area. These were the employment characteristics on the questionnaire that physical therapists found to be associated with WMSDs. The last component covered the methods used by physical therapists to manage WMSDs.

Data Analysis

For the statistical analysis, the SPSS software (SPSS version 21.0 for Windows; Inc., USA) was used. Descriptive statistics were used to estimate sample demographics and the incidence of WMSDs. Using incidence rates and cross-tabulations, a variety of demographic traits and work settings were associated with the existence of WMSDs. The chi-square test was used to evaluate the relationship between the incidence and correlation of WMSDs and the professional characteristics of physical therapists, work settings, and demographic variables. The significance criterion was established at a p-value of < 0.05 for all studies.

RESULTS

Response

Out of the 137 licensed physical therapists who were asked to participate in the research, 115 of them completed the questionnaires. Fifteen of these surveys were incomplete, and as a result, they were not included in the study. As a result, the prevalence rates were ultimately assessed using the data from 100 individuals.

Participants' description

Table 1 displays the attributes for every topic. There were 42 (42%) female participants and 58 (58%) male participants. The bulk of physical therapists—56 percent—were employed by government hospitals. The most common specialization was orthopedics, which was followed by neurology, pediatrics, and other disciplines. Physical therapists worked more than 40 hours per week on average (42%; Table 1).

Table 1: Description of the Participants

Description	Participants (N = 100)	Percentage
Gender		
male	58	58
female	42	42
Age		
20–30 years	56	56
31–40 years	34	34
Working sector		
government sector	56	56
private sector	24	24
both government and private sectors	4	4
specialized hospital	10	10
schools	6	6
Areas of specialty		
orthopedics	45	45
neurology	21	21
cardiology	5	5
burns	2	2
geriatrics	3	3
pediatrics	10	10
sports	8	8
others	6	6
Work experience		
0–5 years	79	79
6–10 years	15	15
Working time		
≤10 h/week	1	1
11–20 h/week	5	5
21–30 h/week	12	12
31–40 h/week	40	40
>40 h/week	42	42
Working position		
standing	14	14
sitting	5	5
standing and sitting	81	81
Physical activity		
0 min/week	5	5
1–15 min/week	15	15
16–30 min/week	19	19
31–45 min/week	14	14
46–60 min/week	21	21
61–90 min/week	12	12
>90 min/week	13	13
Any other work along with physiotherapy		
yes	19	19
no	81	81

Prevalence

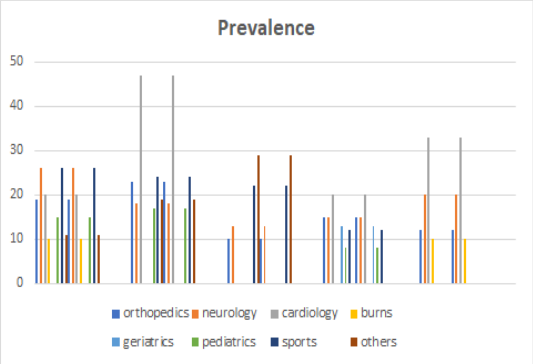
Gender significantly influenced the frequency of work-related neck and low back symptoms, with more women than men reporting these issues. Similarly, complaints of the shoulders and low back linked to employment were associated with participant age and were more common in younger age groups. Neck issues relating to the workplace were linked to certain industries and job roles. There was statistical significance in all of these associations ($p < 0.001$). (table 2).

Table 2 a: Work-related musculoskeletal disorders (WMSDs) Prevalence

Body parts (n=100)						
Variable	**neck**				**Shoulder**	
	n	**%**	**P**	**N**	**%**	**P**
Gender			**0.001***			**0.012**
male	36	36		32	32	
female	45	45		53	53	
Age			**0.36**			**0.05***
20–30 years	59	59		32	32	
31–40 years	12	12		46	46	
41–50 years	23	23		8	8	
>50 years	0	0		0	0	
Working sector			**0.005***			**0.09**
government hospital	41	41		28	28	
private hospital	26	26		21	21	
both government and private hospitals	10	10		10	10	
special hospital	17	17		16	16	
schools						
Specialty			**0.42**			**0.22**
orthopedics	19	19		23	23	
neurology	26	26		18	18	
cardiology	20	20		47	47	
burns	10	10		0	0	
geriatrics	0	0		0	0	
pediatrics	15	15		17	17	
sports	26	26		24	24	
others	11	11		19	19	

Table 2 b : Work-related musculoskeletal disorders (WMSDs) Prevalence

Body parts (n=100)									
Variable	elbow/forearm			wrist/hand			wrist/hand		
	n	%	p	n	%	p	n	%	p
Gender			0.06			0.91			0.89
male	12	12		24	24		17	17	
female	9	9		23	23		11	11	
Age			0.43			0.33			0.43
20–30 years	13	13		19	19		13	13	
31–40 years	11	11		30	30		11	11	
41–50 years	0	0		33	33		25	25	
>50 years	0	0		0	0		0	0	
Working sector			0.62			0.12			0.84
government hospital	14	14		17	17		16	16	
private hospital	8	8		7	7		11	11	
both government and private hospitals	0	0		10	10		0	0	
special hospital	9	9		16	16		9	9	
schools	0	0		19	19		14	14	
Specialty			0.49			0.59			0.004*
orthopedics	10	10		15	15		12	12	
neurology	13	13		15	15		20	20	
cardiology	0	0		20	20		33	33	
burns	0	0		0	0		10	10	
geriatrics	0	0		13	13		0	0	
pediatrics	0	0		8	8		0	0	
sports	22	22		12	12		0	0	
others	29	29		0	0		0	0	



Fiure 1: Work-related musculoskeletal disorders (WMSDs) Prevalence

Characteristics

Table 3 shows that the majority of Saudi Arabian physical therapists experienced two to five episodes of wrist/hand, elbow/forearm, neck, shoulder, and thumb WMSDs.

The most common complaint was pain, which was followed by stiffness, spasms, and other symptoms. The majority of patients with problems related to their neck, shoulders, or elbows got physical therapy treatment, as shown by Table 3.

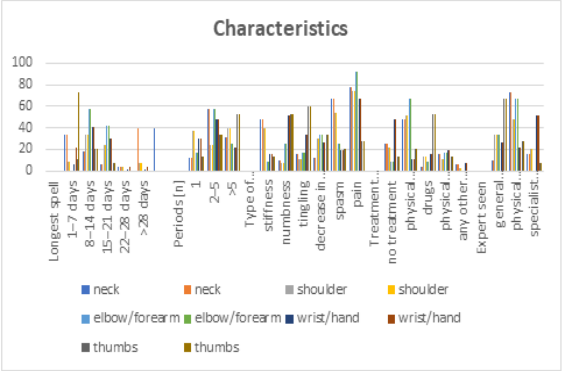
Table 3: Work-related musculoskeletal disorders (WMSDs) Characteristics among physicaltherapists

Variable	neck		shoulder	
	n	%	n	%
Longest spell				
1–7 days	33	33	9	9
8–14 days	18	18	33	33
15–21 days	6	6	24	24
22–28 days	4	4	4	4
>28 days	39	39	7	7
Periods [n]				
1	12	12	37	37
2–5	57	57	24	24
>5	31	31	39	39
Type of complaints				
stiffness	48	48	39	39
numbness	10	10	7	7
tingling	16	16	11	11
decrease in strength	12	12	30	30
spasm	67	67	54	54
pain	78	78	74	74
Treatment received				
no treatment	25	25	22	22
physical therapy	48	48	52	52
drugs	4	4	13	13
physical therapy and drugs	16	16	11	11
any other treatment	6	6	2	2
Expert seen				
general practitioner	10	10	33	33
physical therapist	73	73	48	48

Table 3 b : Work-related musculoskeletal disorders (WMSDs) Characteristics among physicaltherapists

Variable	elbow/forearm		wrist/hand		Thumbs	
	n	%	n	%	n	%
Longest spell						
1–7 days	0	0	6	22	11	73
8–14 days	58	58	41	41	20	20
15–21 days	42	42	30	30	7	7
22–28 days	0	0	1	4	0	0
>28 days	0	0	1	4	0	0
Periods [n]						
1	17	17	30	30	13	13
2–5	58	58	48	48	33	33
>5	25	25	22	22	53	53

Type of complaints						
stiffness	8	8	15	15	13	13
numbness	25	25	52	52	53	53
tingling	17	17	33	33	60	60
decrease in strength	33	33	26	26	33	33
spasm	25	25	19	19	20	20
pain	92	92	67	67	27	27
Treatment received						
no treatment	8	8	48	48	13	13
physical therapy	67	67	11	11	20	20
drugs	8	8	15	15	53	53
physical therapy and drugs	17	17	19	19	13	13
any other treatment	0	0	7	7	0	0
Expert seen						
general practitioner	33	33	26	26	67	67
physical therapist	67	67	22	22	27	27
specialist doctor	0	0	52	52	7	7



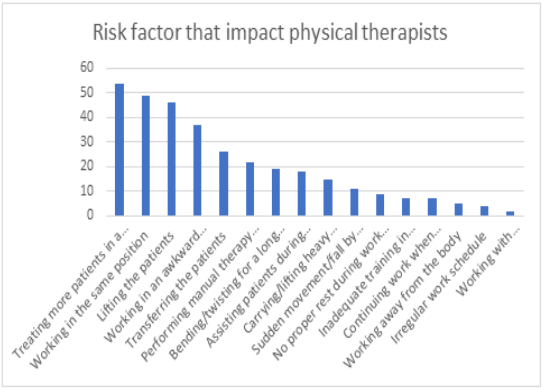
Fiure 2: Work-related musculoskeletal disorders (WMSDs) Characteristics among physical therapists

Impact

Physical therapists who responded to the poll said that working with many patients on a daily basis (48%) and staying in one place for lengthy periods of time (43%) were the two most important job impacts. The two least important characteristics were dealing with psychologically or disoriented patients (2%) and irregular work patterns (4%) (Table 4).

Table 4: Risk factor that impact physical therapists

	Participants (N = 100)	
Risk factor	n	%
Treating more patients in a day	48	48
Working in the same position	43	43
Lifting the patients	41	41
Working in an awkward position	33	33
Transferring the patients	23	23
Performing manual therapy techniques	19	19
Bending/twisting for a long time	17	17
Assisting patients during gait activities	16	16
Carrying/lifting heavy weights	13	13
Sudden movement/fall by patients	10	10
No proper rest during work time	8	8
Inadequate training in injury prevention	6	6
Continuing work when injured	6	6
Working away from the body	4	4
Irregular work schedule	4	4
Working with psychological/confused patients	2	2



Fiure 3: Risk factor that impact physical therapists

CONCLUSION

The study's result emphasizes how important it is for physical therapists in the Kingdom of Saudi Arabia to address the serious problem of musculoskeletal illnesses connected to their jobs. The frequency of these conditions emphasizes how crucial it is to put ergonomic treatments and preventative measures into practice in clinical settings. It is important to tackle risk factors, such as extended patient care and substandard ergonomic practices, in order to enhance the well-being of physical therapists and guarantee the longevity of their employment.

Furthermore, the effect that WRMSDs have on physical therapists' everyday life and professional performance highlights the need of all-encompassing wellness programs and support networks in healthcare facilities. Workplaces should include strategies like ergonomic training, frequent breaks, and the availability of suitable equipment to reduce the incidence of musculoskeletal illnesses.

In order to lower the incidence of WRMSDs and enhance the general working conditions for physical therapists in the Kingdom of Saudi Arabia, policymakers, healthcare organizations, and physical therapy practitioners may benefit from the insightful information provided by this research. Maintaining a viable and efficient healthcare system in the area requires giving these professionals' health and wellbeing first priority.

REFERECES

1. Abi AL (2016) Musculoskeletal disorders among Lebanese dentists-trend evolution. J Oral Med Toxicol 1(1):1–5

2. Ahmed AS, Oraby EE (2017) Work-related musculoskeletal disorders among dentists in Sharkia Governmental Hospitals, Egypt. Egypt J Occup Med 41(2):175–186

3. Al Shammari M, Hassan A, Al Dandan O, Al Gadeeb M, Bubshait D (2019) Musculoskeletal symptoms among radiologists in Saudi Arabia: a multi-center cross-sectional study. BMC Musculoskelet Disord 20(1):541

4. Aseri KS, Mulla AA, Alwaraq RM, Bahannan RJ (2019) Characterizing occupational low back pain among surgeons working in ministry of health hospitals in Jeddah city: prevalence, clinical features, risk, and protective factors. KAU Med Sci 26(2):19–34

5. Atia DT, Abdelazeim FH, Radwan H (2015) Impact of work-related musculoskeletal disorders on Egyptian pediatric physical therapists: one-year follow-up study. Trends Appl Sci Res 10(3):175–182

6. Attar SM (2014) Frequency and risk factors of musculoskeletal pain in nurses at a tertiary Centre in Jeddah, Saudi Arabia: a cross sectional study. BMC Res Notes 7(1):61

7. Briggs AM, Woolf AD, Dreinhöfer K, Homb N, Hoy DG, Kopansky-Giles D, Åkesson K, March L (2018) Reducing the global burden of musculoskeletal conditions. Bull World Health Organ 96(5):366–368
GBD (2017/2018) Causes of Death Collaborators. Global, regional, and national age-sex-specific mortality for 282 causes of death in 195 countries and territories, 1980–2017: a systematic analysis for the Global Burden of Disease Study 2017. Lancet 392(10159): 1736–1788

8. Giurgiu DI, Jeoffrion C, Grasset B, Dessomme BK, Moret L, Roquelaure Y, Caubet A, Verger C, Laraqui CE, Lombrail P, Geraut C, Tripodi D (2015) Psychosocial and occupational risk perception among health care workers: a Moroccan multicenter study. BMC Res Notes 8(1):408

9. Gopal K, Thomas M, Sreedharan J (2012) Work-related musculoskeletal disorders (WMSD) in hospital nurses: prevalence and coping strategies. Gulf Med J 1(S1):S159–S163

10. Gross DP, Ferrari R, Russell AS, Battié MC, Schopflocher D, Hu RW, Waddell G, Buchbinder R (2006) A population-based survey of back pain beliefs in Canada. Spine 31(18):2142–2145

11. Habib RR, Frangieh M, Haddad N, Hojeij S, Coggon D (2011) Musculoskeletal pain and psychosocial factors among Lebanese workers. Occup Environ Med 68(Suppl 1):A67

12. Homaid MB, Abdelmoety D, Alshareef W, Alghamdi A, Alhozali F, Alfahmi N, Hafiz W, Alzahrani A, Elmorsy S (2016) Prevalence and risk factors of low back pain among operation room staff at a Tertiary Care Center, Makkah, Saudi Arabia: a cross-sectional study. Ann Occup Environ Med 28(1):1

13. Jaoude SB, Naaman N, Nehme E, Gebeily J, Daou M (2017) Work-related musculoskeletal pain among Lebanese dentists: an epidemiological study. Niger J Clin Pract 20(8):1002–1009

14. Khairy WA, Bekhet AH, Sayed B, Elmetwally SE, Esayed AM, Jahan AM (2019) Prevalence, profile, and response to work-related musculoskeletal disorders among Egyptian physiotherapists. Open Access Macedonian J Med Sci 7(10):1692–169.

15. Kumar S, Sadek MY, Sreedharan J (2012) Prevalence of upper quadrant musculoskeletal disorders among dental students and professionals in Ajman, UAE: an observational study. Gulf Med J 1(S1):S164–S168

16. Lin TH, Liu YC, Hsieh TY, Hsiao FY, Lai YC, Chang CS (2012) Prevalence of and risk factors for musculoskeletal complaints among Taiwanese dentists. J Dent Sci 7(1):65–71
Qareeballa AA, Alhamdan OA, Almutawaa AA, Alsayed IM, Kamal FA, Al Abdrabbuh DS, Al Suwaidi MK, Rashwan MA, Buhiji AM, Makarem BA (2018) Prevalence of low back pain among female nurses working in secondary and tertiary healthcare, Kingdom of Bahrain. Int J Med Sci Public Health 7(3):183–188

17. Soylar P, Ozer A (2018) Evaluation of the prevalence of musculoskeletal disorders in nurses: a systematic review. Med Sci 7(3):479–485

18. Tavakkol R, Kavi E, Hassanipour S, Rabiei H, Malakoutikhah M (2020) The global prevalence of musculoskeletal disorders among operating room personnel: a

systematic review and meta-analysis. Clin Epidemiol Glob Health. In Press:

19. Tyrovolas S, El Bcheraoui C, Alghnam SA, Alhabib KF, Almadi MA, Al-Raddadi RM, Bedi N, El Tantawi M, Krish VS, Memish ZA, Mohammad Y (2020) The burden of disease in Saudi Arabia 1990–2017: results from the global burden of disease study 2017. Lancet Planet Health (5):e195–e208

Corresponding Author

Omar Obaidallah Althomali*

Physical Therapist, Armed Forces Center For Health Rehabilitation, Taif City -Saudi Arabia